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ABSTRACT

This educational research and development program was designed to improve education and to provide instruments for making significant educational decisions related to the efficiency and effectiveness of programs. The first year was used to plan and identify tasks and goals. Individualized instruction was considered a vital component. It was agreed that an instrument for assigning quality assessments to educational tasks had to be constructed and that a system of cost analysis should be devised. The nine elements of the recommended program are 1) evaluation of educational outcomes in terms of student performance; 2) development of a system for determining the cost of various approaches for using educational resources; 3) determination of the validity and effectiveness of school staffing patterns; 4) development of an individualized instruction model for elementary education; 5) development and evaluation of a system of student participation in instruction; 6) study, development, and demonstration of new modes of community-school cooperation; 7) development of technology for state-wide planning; 8) development of new techniques and materials for teacher training; and 9) review of patterns, mixes, and mechanisms in developmental capital applied to these programs. A description of each program is included, together with procedures and expected outcomes, and a recommended timetable covering a period of five years is outlined. (MBM)

ED055052

THE FLORIDA EDUCATIONAL RESEARCH AND DEVELOPMENT PROGRAM

FIRST ANNUAL REPORT

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State of Florida
Department of Education
Floyd T. Christian, Commissioner
February 24, 1970

SP005286

This report was prepared in the Division of Elementary and Secondary Education, Shelley S. Boone, Director. Single copies of this report may be obtained from the administrator of the Florida Educational Research and Development Program, Florida Department of Education, Tallahassee, Florida 32304.

PREFACE

Florida education is facing two serious challenges--rising expectations and rising costs. These challenges are particularly difficult because normal approaches for dealing with either will make the other more critical. If typical practices are followed to fulfill increased expectations, the problem of costs will become more acute. Likewise, when the usual efforts are made to reduce costs, parallel reduction in expectations may follow.

The Educational Research and Development Program has set out to deal constructively with the issues of expectations and costs. This report proposes that the State of Florida develop the technology needed to clarify the expectations which it holds for its educational programs. This would be done through the development of new types of educational output measures. At the same time, this report proposes to develop procedures and techniques needed to increase the likelihood that the educational system can fulfill our expectations. This will be accomplished through individualizing instruction, utilizing students in instruction, utilizing community resources, and improving teacher training techniques. Finally, this report proposes that better techniques for managing education be developed. This would be accomplished through improved techniques for determining costs, managing funds, and projecting needs.

We have been fortunate in drawing together a group of distinguished educational leaders from throughout the country to deliberate and recommend programs for inclusion in this report. We have been equally fortunate to assemble a group of advisors representing all levels and areas of education within Florida--educators, students, and citizens interested in education--to make recommendations regarding this report. The efforts of both the national group and the state group are greatly appreciated. This report represents a responsible set of proposals for bringing about significant improvements in Florida education.

I am proud to commend this report to members of the Legislature and the State Board of Education.

Floyd T. Christian
Commissioner of Education

THE FLORIDA EDUCATIONAL RESEARCH AND DEVELOPMENT PROGRAM

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THE FLORIDA EDUCATIONAL RESEARCH AND DEVELOPMENT PROGRAM

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I. INTRODUCTION

The 1969 Florida Legislature created the Florida Educational Research and Development Program. The purpose of this program is to provide information on techniques to improve education in Florida. The authorization for this program is found in Section 229.561, Florida Statutes.

What is Research and Development?

The Statutes specify that support provided under the Florida Research and Development Program shall be for "applied research and development." Such research is "action oriented." That is, it yields a tangible product to which development costs can be assigned. Hence, the research and development encompassed under the Educational Research and Development Program shall be conducted to "design and test procedures, materials, and techniques for accomplishing educational goals in Florida." Projects conducted under the program can deal with instructional techniques and procedures such as methods for stimulating pupils to take responsibility for their own learning or methods for measuring the results of instruction. Projects can also deal with administrative techniques and procedures such as designing better school facilities or better financial accounting systems.

To summarize, any research and development project conducted under the Florida Educational Research and Development Program shall yield a product which is relevant to the educational goals of the State of Florida. It will be possible to assign development costs to this product. The product will consist of procedures, materials, or techniques for use in carrying out the instructional or administrative aspects of Florida education.

Activities During 1969-70

The Statutes provide that the 1969-70 fiscal year shall be used for appointing and organizing the Advisory Council and the Board of Governors, employing staff, developing the master plan for the program, and designating participating schools or centers.

During July, 1969, the Commissioner of Education solicited recommendations from a variety of sources for names of persons who should be considered for membership on the Advisory Council. In August, the Advisory Council members were appointed.

The Advisory Council held its first meeting on September 18. At that time, the Council elected a chairman and agreed upon procedures for nominating members to the Board of Governors. The Council met again on September 29 and prepared its slate of nominees for the Board of Governors to be submitted to the Commissioner.

The Advisory Council held its next meeting on November 5. This was followed by a joint meeting of the Advisory Council and Board of Governors on November 6, and a meeting of the Board of Governors only on November 7. On November 5, the Advisory Council prepared for the orientation of the Board of Governors. During the joint meeting on November 6, members of the Advisory Council introduced the

Board of Governors to the Program and reviewed prior discussions. On November 7, the Board of Governors agreed to establish "the evaluation of innovations" as a tentative priority for the Program. The Board also requested that two reports be prepared for their use in making further decisions regarding this priority. Outside consultants were engaged to prepare these two reports. These reports were "Tools and Techniques for Evaluating Innovations" and "A Survey of Innovations in Florida Schools: Preliminary Draft."

The Advisory Council met on December 5 to discuss the recommendations made by the Board of Governors and to review the reports prepared by the consultants. At that meeting, the Advisory Council concluded that the evaluation of innovations should not be considered as a primary focus for the Research and Development Program. Instead, it was recommended that the Program concentrate on developing and validating evaluative instruments and procedures which are generalizable to the ongoing instructional program.

The Board of Governors met on December 7-8 and reviewed the recommendation of the Advisory Council, as well as the reports by the consultants. The Board concurred with the recommendation of the Advisory Council and agreed to make the development of generalizable evaluation instruments a basic element of the proposed Research and Development Program. Such instruments would serve as the beginning of a system to measure the outputs of Florida education. This recommendation, as well as the others upon which the Board agreed, is reflected in the proposals contained in Part III of this report.

Following the meeting on December 7-8, Fred Daniel of the Commissioner's staff and Robert Gagne of the Board of Governors prepared a draft of this report. A survey of current research and development activities being carried out by the Department of Education was also conducted in the process of preparing the draft. The first draft of this report was mailed to members of the Advisory Council and Board of Governors on January 30, 1970.

The Advisory Council met on February 9 and the Board of Governors on February 9-10 to discuss the report and recommend modifications. The present report includes all recommendations and modifications which were made at that time.

Future Activities in 1969-70

In planning for the Research and Development Program, the first five months of the 1969-70 fiscal year were required to set up a decision-making structure. During the next three months, the basic elements of the Program were identified and described. During the final four months of this fiscal year, the specifications for the Program will be developed in detail.

During March and April, recognized experts in each of the program areas described in Part III of this report will be contacted. Following conferences with these experts, requests for proposals will be drafted. Proposals will be solicited from local school districts, colleges and universities, and private corporations (both profit and non-profit). The first proposals solicited will be for the development of detailed specifications for research and development projects. The detailed specifications will include performance requirements, conditions under which the

research and development products will be demonstrated, conditions under which they will be developed, and costs. Each of these proposals shall make provisions for the inclusion of one or more schools in Florida which will be designated as pilot schools for developing, testing, and demonstrating the research and development products. During the month of June, the proposals will be reviewed by the staff of the Department of Education and by the Board of Governors. Then, research and development projects will be selected to begin during the 1970-71 year.

Staffing

The Board of Governors considered the matter of staffing at its first meeting and decided that it would not be appropriate to nominate a candidate to administer the Research and Development Program until the general specifications for the Program have been prepared. Therefore, a member of the staff of the Commissioner and the State Board of Education, was appointed to serve on a part-time basis as interim administrator for the Research and Development Program.

The matter of staffing was again discussed by the Board of Governors on December 8. It was felt that the nomination of a director should be delayed further until the plan for Research and Development was completed. It was suggested that funds budgeted for staff positions might be used for the employment of additional consultants when they will be needed later in the year. On February 10, a subcommittee of the Board of Governors was appointed to seek a permanent administrator for the program.

To date, the program has been staffed as follows: one secretary was employed in November; a staff member of the Division of Elementary and Secondary Education was assigned to serve temporarily as research associate beginning in December; and one additional person was employed temporarily as a consultant in February.

Current Research and Development Activities in the Department of Education

All of the Divisions in the Department of Education are currently carrying on some research. The research units in these Divisions were established to conduct research which is administrative or institutional in nature; that is, it deals with collecting, compiling and analyzing data needed to maintain the continued operation of present educational programs. Brief descriptions summarizing current research and development activities in each of the four Divisions are given below. These activities differ from the program being proposed under the new Research and Development Program in that the new program will support highly concentrated efforts in specified areas of applied research and development.The new efforts will be designed to bring about significant changes in present programs.

Division of Community Colleges

The Division of Community Colleges carries out administrative research required to fulfill its legal responsibilities in administering the state junior college program. This includes the collecting and maintaining of records related

to student attendance and instructional personnel employed.

The Division of Community Colleges is sponsoring or participating in administrative research applying to the responsibilities of the Division or to the system as a whole, such as:

Development of an internal auditing system.
Development of a cost-analysis for operations of community colleges.
Development of a systems approach to instructional program planning.
Development of revised criteria for institutional accreditation.
Development of curricula for individual courses.

The role of the Division of Community Colleges is primarily to identify research needs and coordinate research conducted by elements of the Community College system. Each institution conducts research addressed to its needs, and much system-wide research is handled by the Inter-Institutional Research Council, a voluntary council supported by subscriptions from the 15 member colleges. Current activities of the IRC include:

A management information system for community colleges.
A model for long-range planning in community colleges.
A model for compensatory education in community colleges.
A flexible access, special use, computer program library.
The development of appropriate instruments for follow-up studies on community college students.
The establishment of measurable objectives for evaluating faculty.

Division of Elementary and Secondary Education

The Division of Elementary and Secondary Education includes a Bureau of Research which is organized to serve the entire Division. The research done by this Bureau, as well as all the Bureaus in the Division, is primarily administrative in nature. The activities of the Bureau include (1) preparation of pupil estimates and needs, (2) providing information for use in the annual budget request for the Minimum Foundation Program, (3) preparation of annual reports for the U. S. Office of Education, and (4) preparation of periodic reports dealing with various aspects of state educational programs, such as attendance data, pupil enrollment, teacher salaries, etc.

In addition, there are certain specialized programs being conducted by the various Bureaus. These include:

A theoretical model for evaluating educational programs.
Assessment of educational needs in local school districts.
Identification of ways for more rapid and economic school building construction.
A model for providing Department of Education services on a regional basis.
A computer-based system for simulating educational personnel needs.
New standards for school accreditation.
Individualized teacher training materials.
A vehicle for Program Planning Budgetary Systems.

Division of Universities

A variety of projects and studies were conducted by the Chancellor's staff during the past year designed to result in the development of new procedures, techniques, and material (including planning documents). The following is a list of representative studies completed in 1969:

A Comparative Study of State and Nationwide Faculty Tenure Policies.
Student Rights and Responsibilities and Campus Disorder Policies.
Post-Junior College Education for Charlotte, Collier, and Lee Counties: A Feasibility Study.
A New State University in Jacksonville, Florida: A Planning Document for the University of North Florida.
Plans Beyond High School: A Statewide Survey of the Post-Secondary Educational Intentions of 75,000 Florida High School Seniors.
The Production of Video Television Tapes and Films, and the Development of Related Instructional Materials.

The following projects are now being conducted by the Chancellor's staff:

Comprehensive Development Plan for the State University System (CODE).
Management Information Systems.
Separation of Administrative Procedures from Board of Regents policies in Management of the State University System.
Regents Award for Superior Teaching & Instructional Innovation.
Definition and Improvement of Research and Experimentation Functions of Campus Laboratory Schools.
Evaluation and Review of Statewide Program for Title I, Higher Education Act, 1965.
Improving Training Program for Librarians and Other Instructional Media Specialists.
Determining Role and Scope of Teacher Education in the State University System.
Annual Revision, Updating and Extension of Systemwide Enrollment Projections, by Level and by Institution (Headcount, Full-time Equivalent, and Three-Quarter Averages).
Developing, Planning, Programming and Budgeting System for the State University System.

Division of Vocational Education

The broad purposes of the research and evaluation function of the Division of Vocational Education are to initiate and coordinate, and in some instances to conduct, studies needed to improve vocational, technical, and adult education in the State. Other purposes of the function relate to field testing and disseminating research information, evaluating program effectiveness, and developing exemplary programs.

A number of development projects are being carried out in the Division of

Vocational Education or under its sponsorship. These include the following:

Development and revision of curriculum in certain existing vocational occupational areas.
Development of curriculum for new vocational educational programs.
Development of a pilot information center for vocational education.
Development of procedures, guidelines and instruments for the evaluation of vocational education programs.
Development of a model to determine cost-effectiveness ratios of vocational education.
Development of a system to measure vocational education impact on labor market needs for trained manpower.

II. A PLAN FOR MANAGEMENT AND ACCOUNTABILITY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

The Educational Research and Development Act has focused attention upon the importance of research and development as an essential element of a management plan to bring about systematic improvements in public education. The Act creates a new program for sponsoring research and development activities which will influence critical educational decisions. This new program is to be conducted by the Commissioner of Education. It is expected that this program will have some impact on the already established research and development activities in the Department of Education and also will be influenced by those activities. Therefore, it is necessary that an effective plan for managing the new program be devised and that this program be coordinated with the other research activities taking place in the Department of Education.

Managing the New Program

To facilitate the management and accountability for activities carried out under the Educational Research and Development Act, the Commissioner of Education has established an administrative staff within the Department of Education consisting of two professional staff members--a program administrator and a research associate--and two secretaries. Pursuant to the requirements of the statute, the administrator will be nominated by the Board of Governors. The Board chose not to nominate candidates for this position until the nature and scope of the program had been clarified. Candidates for this position are now being considered.

Major functions of the new Educational Research and Development unit are as follows: Identifying research and development needs, managing projects sponsored with funds appropriated under the Educational Research and Development Act, and securing outside support. A brief discussion of each of these activities follows.

Identifying Research and Development Needs

It is the responsibility of the Research and Development Program to identify research and development needs so that activities conducted under the program will be responsive to the needs of educational decision-makers. To identify needs, the program will rely upon the two advisory groups created under the Educational Research and Development Act, the persons who serve on the staff of the State Board of Education and the Commissioner, and a task force composed of representatives of all four divisions in the Department of Education.

The Advisory Council is broadly representative of Florida educators and persons interested in education. The Board of Governors represents educational researchers and administrators, as well as teachers and school board members. Researchers and administrators appointed to the Board of Governors were selected nationally to bring a broader perspective to the program. The staff for the Board of Education and the Commissioner keeps the program responsive to the needs of the highest level executive policy-makers for education. The task force composed of representatives from the various divisions in the Department of Education assures

optimum utilization of the educational resources of Florida for carrying out research and development activities. The administrative staff for the Research and Development Program meets regularly with all of the above groups.

Managing Projects Sponsored With Funds Appropriated Under the Educational Research and Development Act

The professional staff for the Research and Development Program will not actually conduct research and development activities. Its primary responsibility will be for the management of those activities. This management will consist of preparation of specifications, negotiation of contracts, auditing results, and disseminating results.

Detailed specifications will be prepared for each research and development project. These specifications will describe the product which the research and development activity is to produce. Contracts will be drafted with payment based upon successful production of the products specified. Contracts may be with local schools, universities, individuals, or corporations. All contracts for instructional products which can be used in local schools will require that the product be successfully demonstrated in a school designated as a pilot school under the Research and Development Program.

The Research and Development staff will assist with the dissemination of the products which result from the Research and Development Program. However, actual dissemination will be handled by the appropriate unit in the Department of Education. For example, a research and development product to be utilized in programs for exceptional children in elementary and secondary schools would be disseminated by the Exceptional Child Section in the Bureau of Curriculum and Instruction.

Securing Outside Support

The Research and Development staff will attempt to secure outside support from federal or foundation sources for activities to be conducted under the Florida Educational Research and Development Program. However, such support shall be solicited only to meet needs identified by the advisory bodies described above. No support will be solicited solely to expand the Research and Development Program. All research and development conducted under the auspices of this program shall be designed to promote research and development activities which will contribute to better decisions by educational decision-makers in Florida, whatever the source from which financial support for the activities is derived.

Coordinating Research and Development Activities in the Department of Education

The staff of the Commissioner and the State Board of Education will assume the responsibility for coordinating research and development activities in the Department of Education. The Associate Commissioner for Planning and Coordination will work closely with the administrators for research in each of the divisions and the

administrator for the new Educational Research and Development Program. A set of principles delineating the appropriate responsibilities for each of the research units will be adopted. These principles will also allow the various units to work together in cooperative projects. This will be facilitated by a system for communication among the research units and with the top level decision-makers which will be developed.

III. THE PROGRAM FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

The Florida Program for Educational Research and Development is planned to include nine major components, described as follows:

(A) Development and evaluation of a system for assessing the quality of educational outcomes in Florida schools, in terms of the performances of students in activities of value to them in a modern society.

(B) Development of a cost-determination system which will make possible the determination and forecasting of costs of various plans for education involving changes in the use of program, personnel, facilities, duration of efforts, and involvement of community resources.

(C) Determination of the validity and effectiveness of school staffing patterns for efficient utilization of public school personnel, and development of a model for systems analyses of future staffing problems in cost-effectiveness terms.

(D) An integrated developmental effort to establish an individualized model for elementary schools, involving the individualization of instruction, with emphasis on basic skills, learning strategies, and positive attitudes toward continued learning.

(E) Development and evaluation of a system for student participation in instruction which provides additional new resources for the teacher as a manager of the instructional process and a counselor of individual student development.

(F) Study, development, and demonstration of new modes of community-school relations, providing for increased involvement of students, parents, and community leaders in community programs, and increased use of school facilities to serve larger community needs.

(G) Increasing capabilities of the Department of Education for planning and evaluating educational programs, by development of a system to provide techniques and tools for use in the Department in support of its decision-making functions.

(H) Developing new techniques and materials for training professional educators aimed at specific teacher-administrator training objectives and with built-in evaluation techniques to determine the extent to which objectives are accomplished. Such materials should make possible a new approach to certification which would be based upon performance criteria.

(I) Careful review of patterns, mixes and mechanisms in developmental capital applied to programs A through H will result in statements of principles regarding the flow of funds.

The various parts of the total program are related to each other in an integral manner. The program as a whole should provide (1) close coordination of efforts of the subordinate programs at all stages; (2) deliberately planned participation

of industrial, University, and school agencies in more than one part-program at any one time, when desirable to effect integrated outcomes, not to exclude single efforts of particular school systems; and (3) stages of planned utilization of one part of the program by another, where appropriate.

Relations of Programs to Each Other

The interdependence of parts of the program may be illustrated by the following propositions: A system for evaluating educational outcomes (Program A), although applicable to traditional classroom methods, has its optimal development in an educational system employing an individualized approach to student learning (Program D). A system for forecasting cost-effectiveness (Program B) requires for its full development systematic information on the quality of educational outcomes (Program A), as well as information concerning the elements to be included in staffing patterns for schools (Program C). An individualized model for elementary education requires new definitions of staffing patterns (Program C), makes use of process and product measures of student performance appropriate to assessment of educational outcomes (Program A), and provides a set of optimizing conditions under which a system of cost-effectiveness estimation can be carried out. Program E is designed to explore the means of having students participate in instruction; it is thus related to Program A in its use of process and outcome measures and to Program C in its implication of new staffing patterns. Program F proposes to examine new uses for school facilities and community resources, and thus relates to Program B insofar as cost implications become involved, as well as to the possibility of new staffing patterns (Program C), and must be considered in relation to educational outcomes (Program A) and the most efficient flow of dollars (Program I). A program for increasing the planning and evaluation capabilities of the Department of Education, based on newly developed procedures (G), has the intention of measuring compatibility and effectiveness of all new programs; and these in turn have various contributions to make to the design of new modes of teacher education (Program H). Supporting each component of the total program is the continued audit of funds to ensure a flow of money which is totally responsive to educational needs (Program I).

Program A -- Evaluation of Educational Outcomes

The demands for realistic appraisal of the outcomes of educational programs come from all of the sources who are concerned with the quality of education--from teachers, administrators, school boards, as well as from state officials and legislators. A system is needed for determining what the schools are accomplishing in terms of what the students who attend school have learned as a result of each year of education--what these students are like, and what they are capable of doing.

In making the determination to attack the problem of assessing educational outcomes, one major point must be clearly stated at the outset, since it is not widely appreciated. This is the point that the instruments that now exist for making the kind of measurements (of student performance) required are extremely rare. So-called "standardized achievement tests" have not been designed to do the job that is required; they have instead been designed for the purpose of selecting students for placement in subsequent educational programs, classes, or institutions. Such a purpose is distinctly different from that of assessing what students are able to do and what they are not able to do, in terms of clearly understandable objectives. Accordingly, it needs to be recognized that a program having the purpose of evaluating educational outcomes cannot begin by using "on-the-shelf tests"; instead, the program must in fact undertake to develop the necessary measuring instruments and procedures.

A program which undertakes to build a system of educational outcome evaluation must incorporate the need to develop and try out three general classes of assessment instruments, as follows:

(1) Measures which are predictive of the student's likelihood of success in an educational program or course of study. Such measures are sometimes called "presage measures." They include the measures which are diagnostic, in the sense that they predict individual strengths or weaknesses in pursuing planned programs of study. These measures need to be a part of the system of evaluation, but while they are mentioned first, they must be developed last in order.

(2) Measures which assess student progress, in terms of unitary instructional outcomes. A system needs to be designed for the use of such measures in systematic fashion with a frequency much greater than that typically followed in the usual class. Such measures are often called "process" measures, because they provide an indication of the immediate effects of instruction on a unit-by-unit basis; in other words, they provide an indication of whether the learning which is planned for is actually taking place.

(3) Of greatest importance, and priority in need for development, are measures of outcome, which are sometimes called "product" measures. Such measures are designed to assess student capability, with reference to the subject taught, in terms of a criterion of student performance which is understandable to students, parents, teachers, and administrators alike. They are the kinds of measures which tell us that a student "reads and understands a newspaper article," as opposed to the ambiguous statement that he "reads in the sixtieth percentile of his grade level."

The means of conducting evaluation, the instrument which will provide measures that predict expected performance, gauge student progress, and assess the outcomes of educational programs, are currently unavailable to teachers and school administrators. They need to be developed. Measures are needed to evaluate educational outcomes in terms of the information which is learned (when that objective is appropriate), in terms of the developing intellectual competence of pupils, and in terms of those desirable attitudes and values which characterize effective citizens. It is at once apparent that the development of such measures is based upon the initial step of defining the objectives of instruction in terms of the expected performance of students. Clearly stated performance objectives constitute the definitions of the classes of measures which are needed.

When such measures are developed, tried out, and put into use, a very considerable clarification can be expected to result regarding the entire process of school learning. Objectives will become apparent to all concerned. The means will be available to assess the quality of education in terms of its outcomes. While such a result is of enormous value in and of itself, measures of educational quality will also enter forecasts of cost effectiveness, and thus provide an essential link with Program B.

Procedures

The central staff will formulate specifications for the work to be done in designing and developing predictive, process, and outcome measures. (A model is provided in Appendix B.) Requests for proposals based upon these specifications will be made to selected agencies which are able to propose cooperative working arrangements involving compacts of schools or school systems, on the one hand, and university or industrial departments and personnel, on the other. The schools involved are intended to function as pilot schools in the development and evaluation of measurement instruments, and in the testing of a system of evaluation. Professional personnel in university or other departments have a crucial role to play in developing rationales, designing and developing the measures to be used, based upon principles of performance assessment. Administrative management may reside in either a school system or university, depending upon local conditions and availability of personnel. Priority in this selection will be accorded, insofar as other considerations allow, to schools or school districts which have instituted local innovations, or have undertaken longitudinal studies, involving one or more of the following elements, or combinations of them:

(1) the individualization of instruction;
(2) increasing competence in the basic subjects of language skills (Communication), mathematics, social studies, science;
(3) mastering skills for gainful employment in a specific occupation;
(4) improved social and human relations skills and attitudes.

During the initial year of operation, the program will proceed to develop and refine the specifications for the measures to be developed. Beginning with the second year, there will be heavy involvement of the personnel of pilot schools, both teachers and administrators, to the extent that considerable released time will be required. This period will be devoted to the development of both <u>outcome</u> and <u>process</u> measures which reflect the objectives of the teaching staff in the schools

concerned. The third year of program operation will see the tryout of these measures in the pilot schools, and the collection of data from them which can be used as initial evaluations of educational quality, as well as a basis for revision and refinement of the measures themselves. Following such pilot administration, results of the evaluation will be collected, tabulated, and interpreted. Specifications can then be drawn up for a total system of evaluation, intended for dissemination in schools throughout the State.

It should be emphasized that Program A is designed to derive useful measures of educational progress and outcome by means of participation of school personnel, with the help of knowledgeable measurement and other specialists. The measures which are designed, and the procedures for using them, are intended to be fully compatible with the objectives of instruction developed by the teachers themselves. This aim is to be achieved, according to plan, by the direct and intensive involvement of school staffs in the pilot schools chosen for this purpose. Naturally, such an effort can best be achieved when practicing teachers are relieved from teaching duties during the time they are participating in project activities.

For planning purposes, it is expected that this program will need to be divided into six projects during its initial year. Depending on the proposals received for pilot school participation, combinations or additional separation of projects may need to be undertaken. The initial projects are described as follows:

Project A-1: Elementary reading, language skills, and mathematics.
Project A-2: Secondary-level communication skills.
Project A-3: Secondary-level skills in occupational education.
Project A-4: Intermediate (junior-high) science and social studies.
Project A-5: Secondary-level social and human relations skills and attitudes.
Project A-6: Elementary science and social studies.

Additional possibilities, which are listed here as components of future planning only, are (a) junior-high language and mathematics skills; (b) junior-high human relations skills and attitudes; (c) secondary science and social studies.

Schedule of Activities

A summary schedule of the activities described is as follows:

Year 1 (FY1970): Development of techniques of measurement, and specification of characteristics of measures to be employed. Receipt of proposals and selection of school-university or school-industry consortia.

Year 2 (FY1971): Design and development of process and outcome measures, with participation of pilot-school teachers and administrators.

Year 3 (FY1972): Tryout of evaluation instruments and system in pilot schools. Collection and interpretation of evaluation data. Revision of measures employed.

Year 4 (FY1973): Further tryout and revision of developed instruments in pilot schools. Specification and description of evaluation system for dissemination

to other schools of the State. Coordination of measures of educational quality with cost-effectiveness system (Program B).

Expected Outcomes of Program A

This program is expected to provide a system of evaluation of educational outcomes which will make possible assessments of educational quality and decisions relative to the means of attaining and maintaining quality of educational outcomes in the schools of the State. At the same time, and as an integral part of the program, it is expected to provide teachers with a set of procedures and materials not currently available to them, which will make possible (1) the unit-by-unit assessment of student progress, together with diagnostic instruments for identifying student strengths and weaknesses, and of guiding student learning; and (2) a set of measures which can be used to measure the outcomes of instruction in terms of student performance, in a manner which reflects teacher-generated objectives.

The innovative features of this program should not be overlooked. It proposes to institute within the schools a means of assessing student progress and student performance which has never before been designed or used. While it is true that teachers often attempt to make the kinds of assessments described in their day by day performance of instruction, they have heretofore not had available a procedure for systematically implementing the kind of evaluation here described, nor of using such a system as an integral part of the instructional process. Nor have outcome measures of the kind envisaged by this program been available--measures which make clear to students, teachers, parents, and other citizens, the accomplishments of educational programs in terms of readily-understandable categories of student competence and capability. The potential effects of this program in improving the quality of education are considered very profound. Florida can be the first state in the nation to possess and utilize a system of confirmed validity which makes possible the assessment of quality of its educational programs.

Program B -- Developing A System for Determining Cost of Various Approaches for Using Educational Resources

The main purpose of this system is to supply cost data that could serve as an information base for decision-making. In the past, school administrators have often made haphazard and random choices among educational alternatives. This was often due primarily to the lack of data regarding costs and benefits. Unfortunately, there has been little research on the actual effectiveness of the educational system or the relation between the costs and benefits of various educational programs. This being the case, many major educational decisions regarding resource allocation are made largely on the basis of intuition. Intuition is not a satisfactory basis for resource allocation. When funds are limited, the efficiency of resource allocation is a critical problem. Educators, like corporate executives, should strive to get the greatest contribution possible from operations. Therefore, it is highly desirable that a cost system be developed so that decision-makers will have an adequate data-base for the consideration of alternative programs and to monitor and audit on-going programs. Such a data-base will also contribute to cost-effectiveness analysis when and if educational benefits are more adequately identified and measured.

In education the school is the relevant cost and output center. Therefore, improved management requires that more be known about the operation of each school. Unfortunately, most Florida Districts are content with a gross per pupil cost for the entire country. This conceals discrimination, diseconomies, and inefficiency. Thus "accountability gaps" have developed. The cost system envisioned calls for a Program Budgeting system which can be applied to any school or program. The major tasks will be (1) development of a program budget, (2) development of data gathering instruments, (3) development of common expenditure account definitions, and (4) development of an account coding system.

Possible Program Structure

Program I - Instruction

- Program Sub-category — Mathematics
- Program Sub-category — Language
- Program Sub-category — Etc.
  - Program Element — Alg. 1
  - Program Element — Alg. 2
  - Program Element — Etc.
    - Program Component (Any instructional unit)

Program II - Instructional Support

- Library and A-V
- Guidance
- In-Service Education

Program III - General Support

- Administration
- Operation of Plant
- Maintenance of Plant
- Auxiliary Services
- Fixed Charges

This structure is similar to that developed by the PPBS Project at the University School, Florida State University. However, it is modified so that it can easily be adopted to State Accounting practices. This structure is geared to the uniform accounting system that Florida has been using for many years. Therefore, most of the data called for in the above structure can be attained without too much difficulty.

It must be pointed out that it will be extremely expensive if costs are broken out at the component (unit) level. However, it may be worth the cost in many situations (e.g., test run of a private enterprise teaching package). Furthermore, the structure is flexible enough so that schools/districts can cut off at any level.

The major problem will be in Program I. School districts in the State of Florida do not currently break out cost beyond the departmental level. This is largely due to the lack of expertise and money, but also the failure to see the need for such detailed cost accounting. Debate will continue for some time to come about the need for cost reporting at the unit level. But it is possible, and procedures developed at the University School are available. It will be up to the policy makers of each district to decide at what level they wish to stop. It may be feasible in some counties to look only at gross instructional costs while others may have the machinery and personnel to calculate component (unit) cost.

Cost Account Definitions. Cost Account definitions must be developed and adhered to in order to collect similar data from all counties involved. The accounting system now used by Florida school districts define many accounts very loosely, therefore for this reason varying interpretations are possible and cost comparisons now made between the Florida school districts can be quite misleading. For example, the distinction between supplies and equipment is especially vague. Also, clarifications should be made between direct and indirect costs and how indirect cost should be handled.

Account Classification Code. After the classification of accounts, by title, and definitions have been determined, an account code will be assigned to each item in the cost format. The assignment of codes to the items in the cost structure will keep the items systematically arranged and will simplify the processing of such data by machines. To prevent confusion and facilitate acceptance, state account numbers may be used with only minor modifications.

Data Collecting Instruments. The development of data collecting instruments is a very important step and will come after the decisions have been made on the cost format, cost account definitions, and account codes. The arrangement of requested data with instructions will have to be done so there will be little room for misinterpretation.

Advantages of the Cost System

1. Uses state account codes
2. Reflects costs of various school programs
3. Brings out the relationship of school programs
4. Facilitates cost comparison of programs
5. Promotes the trade-off concept
6. Little or no disruption of present accounting practices
7. Should encourage PPBS

8. Can be used for many purposes
9. Can be modified to fit district needs
10. Provides relevant cost information

The budget format/reporting device recommended here provides relevant information that can be easily understood and provides a system that facilitates better control and decision-making.

In summary, Program B will be a pioneer effort in Florida public education. Establishing a uniform costing document that could be utilized by Florida school districts for the reporting of individual school expenditures should lay the foundation for improved cost analysis and make possible the comparison of alternative programs. The capability for cost analysis and comparison of alternative programs would appear essential for improved management of Florida schools.

Procedure

The development of the cost system described above is anticipated to be a three year program. Of course, revision may be necessary on any timetable, but the projected time appears to be realistic.

First Year - Develop Basic Model

The activities of the first year were explained in the preceding pages. (For a detailed look at the process of model development, see Figure 1.) The process calls for maximum consultation with pilot school personnel and the Bureau of Finance. This should ensure a practical model and one that will easily gain acceptance.

Second Year - Limited Utilization of Model

During the second year the model will be applied to all projects sponsored under the Educational Research and Development Act. This will be a thorough test and the ensuing evaluation would be expected to suggest necessary revisions.

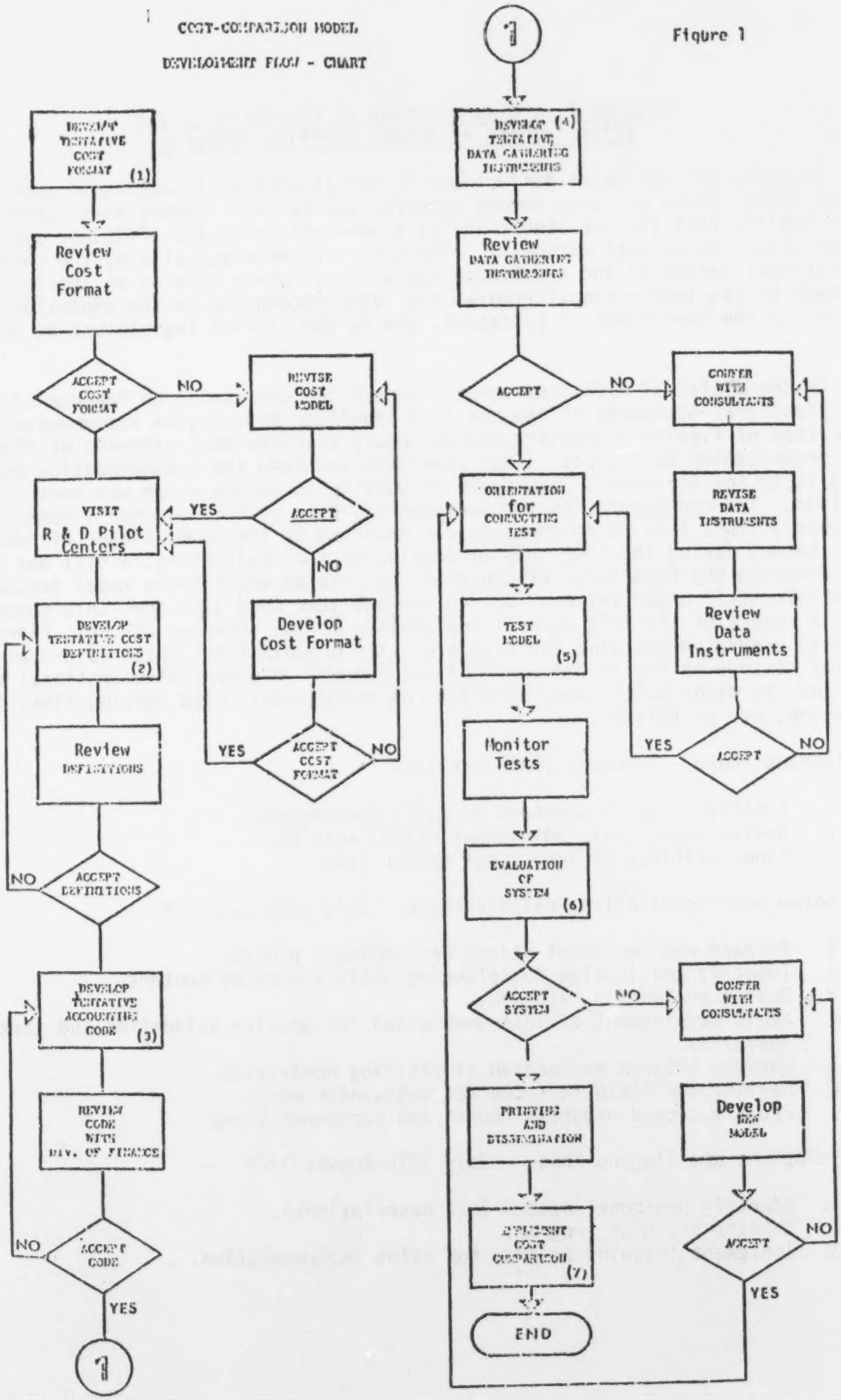
Third Year - Application in General School Situation

After the second year and revisions are made, it is anticipated that the model could be applied to many general school situations. If no major failings are found, the system would be ready for state-wide implementation in following years.

COST-COMPARISON MODEL

DEVELOPMENT FLOW - CHART

Figure 1



Program C -- Determination of the Validity and Effectiveness of School Staffing Patterns

In spite of some basic differences in educational philosophies in public schools today, there are many common concerns and beliefs. Among these concerns is the feeling that Florida should devise a more effective and efficient system for utilizing educational personnel. The need for reconceptualizing the role of instructional personnel and redefining the administrative role as an intrinsic component of the instructional program has been recognized by the education profession, by the Department of Education, and by the Florida Legislature as current needs.

In the winter of 1967, representatives of the Commission on Teacher Education and Professional Standards of the National Education Association recommended to a committee of Florida elementary and secondary teachers that patterns of flexible staff organization be studied. This committee endorsed the recommendation and submitted it to the Governor's Commission on Quality Education which was meeting at that time. The recommendation was subsequently made by the Governor's Commission. In January, 1968, this recommendation was endorsed by the Commissioner of Education. Later, during the 1968 special session of the legislation, a bill was enacted which directed the Department of Education to develop and operate model projects of flexible staff organization. Due to the one year lead time that this component has as a result of the 1968 special legislative action (Chapter 229.801, Florida Statutes) a development plan for flexible staff organization, which is process oriented, is now in the second phase of operations. The general operational timetable and the major tasks, many of which run concurrently with varying times for completion, are as follows:

A. Planning Phase - February 1969-June 1969

1. Finalize process approach to model development.
2. Review legislative commitment (1969) session.
3. Final critique of long-range master plan.

B. Program and Organization Analysis Phase - July 1969-June 1970

1. Prepare and implement statewide readiness program.
2. Identify and involve the planning staff for pilot centers.
3. Design evaluation paradigm.
4. Begin development of instrumentation for problem validation and tasks analysis.
5. Conduct interim evaluation of training activities.
6. Develop and field test cost/effectiveness model.
7. Prepare second progress report and recommendations.

C. Development and Staging Phase - July 1970-August 1970

1. Identify personnel needed (job descriptions).
2. Develop training program.
3. Implement training program for pilot implementation.

D. Pilot Development and Personnel Training, First Academic Year, September 1970-August 1971

1. Development and test components of staffing models at pilot center school (ready phases).
2. Conduct formative evaluation of differentiated staff model.
3. Initiate continuum inservice training and curricula development program.
4. Conduct summative evaluation.
5. Review state school regulations for possible constraints.
6. Provide interim progress report (dissemination).

E. Model Modification Phase, Second Academic Year, September 1971-August 1972

1. Full implementation of planned staffing model.
2. Continue formative evaluation.
3. Evaluate and modify inservice training and curricula development program.
4. Identify implication for preservice training needs.
5. Provide interim progress report (dissemination).

F. Model Evaluation Phase, Third Academic Year, September 1972-August 1973

1. Continue pilot program making necessary revisions based on summative evaluation.
2. Continue formative evaluation.
3. Evaluate and modify inservice training and curricula development program.
4. Validate implications for preservice training needs.
5. Conduct three year summative evaluation.

The Flexible Staff Organization feasibility study pursuant to the legislative intent is directed toward systematically providing definitive information concerning reasonable and replicable alternatives to present staffing patterns thereby alleviating many of the pressing problems confronting the educational system today. The Need is based on the assumption that the existing public school staffing patterns and organizational structures are obsolete and inflexible in terms of relevant educational programs. The organization of staffing patterns should not be viewed solely for institutional advantage or professional opportunity, though this has been the case in the past. The ostensible purpose of staffing patterns is to promote and support desired learning behaviors on the part of students. An organization helps or hinders in the accomplishment of identified student behaviors by the manner in which staff specialization and competencies are utilized to realize specific institutional outcomes. The Goals then are to achieve the maximum effectiveness with efficient utilization of all adult personnel in the school organization to lead (1) to greater student growth and development, (2) job satisfaction and professional opportunity for our educational personnel, (3) to enhance the advantages of the school as an institution.

The overriding Objective of Program C is to develop operational models of flexible staff organization in selected elementary and secondary schools based on differentiated levels of responsibility and compensation for services performed. The Program Design for this component is developed around the "network" concept which provides several management advantages in utilizing total human and financial resources to explore the feasibility of differentiated staffing and to conduct the

necessary developmental activities for implementing flexible staffing patterns on a pilot basis. The network is divided into three proposed categories of operational activities which will be coordinated with the Department of Education's efforts to foster a performance-based educational system. The first category is identified as Program Development and is functionally described as the development and preparation of curriculum materials, based upon the learners' established behavioral criteria. It will be designed for maximum flexibility in exploring the utilization of necessary instructional strategies, e.g., individualized instruction, learning activity packages, modular scheduling, grouping, etc. The second category is identified as Personnel Development which has the described functions of developing and maintaining the necessary training activities for preparing the needed personnel at the state and local levels for pilot implementation. The third category is Evaluation which is designed organizationally to facilitate the program for evaluation and cost-comparison as outlined in the following evaluation design. The Evaluation Design calls for both formative and summative evaluation in all phases of Program C. However, the major activities during the next operational phase of the program will remain highly developmental and will deal specifically with developing and field testing a prototype cost/effectiveness model for determining the cost and benefits of new flexible staffing patterns. The program is currently being carried out jointly by the Division of Elementary and Secondary Education, the Dade County school district, the Leon County school district, and the Sarasota County school district with cooperation from Florida A & M University, Florida Atlantic University, Florida State University and the University of Florida. To date, the major source of funds for administration and personnel training in conjunction with this program were awarded by the U. S. Office of Education.

Program D -- An Individualized Instruction Model for Elementary Education

An important part of the effort of a research and development program needs to be devoted to the development, in a school setting, of a model which integrates the ideas of the separate parts into a working prototype system. A system of individualized instruction can perform this consummatory task. The various procedures needed to bring about instruction which is at every step designed to meet the needs and match the capabilities of the individual student require a new developmental effort. Individualized instruction is integrally related to Program A, since the process and product measures of instruction there described would find their optimal employment within such a system. It is equally related to Program C, since it requires a school staffing pattern which differs from that of the typical school with graded classes. And it has potentially important implications for the entire question of effective teacher education (Program H).

For a number of reasons, it appears highly desirable to begin the development of an individualized model in the elementary grades, where the instructional emphasis is on the basic skills which provide a foundation for all subsequent and continuing education. Model elementary programs are not in themselves new, and a number of current efforts are rather well known. With particular reference to individualized instruction, the IPI system at the Oakleaf School (Pittsburgh, Pa.), and the several individualized schools of Duluth, Minnesota, have attained some national attention. These are, however, partial efforts, and do not incorporate the entire range of developed components which the present program may make possible. For example, none of these experiments has incorporated the kind of learning outcomes and process measures described in Program A. Neither have they undertaken the development of alternative staffing patterns in ways which make possible the systematic design of teacher education and dissemination of staff structuring to other schools, as described in Program C. Thus, the full implications for optimal effectiveness of these component programs can be realized in a comprehensive system for individualized instruction, initially applicable to the elementary school.

A model individualized program for the initial years of schooling would begin for children at the age of four, in order to develop a systematic learning environment which evidence shows to be critical to future intellectual development. It would proceed to kindergarten and through six grades, with the intention of establishing a prototype sequence of thoroughly individualized instruction. Pupils would progress in such a system by the certain attainment of at least minimal instructional goals, particularly in the skill subjects of language and mathematics, at a rate and in a manner tailored to their individual capabilities and styles of learning. Other portions of the instructional program, such as science, social studies, literature, and the arts, would be provided to cover basic objectives in these areas, and in addition in response to the demands of individual pupils, to the point of "massive" enrichment. The efficiency of the learning process under such conditions may be expected to be unusually high, as other studies of individualization have suggested.

The components of a model program of elementary education include at least the following:

(1) carefully defined instructional objectives which reflect the aims of participating teachers;

(2) the employment of "criterion-referenced" measures of process and learning outcomes (see Program A);

(3) curriculum sequences derived from instructional objectives, rather than from subject-matter content;

(4) efficient employment of audio-visual media designed for optimal instructional effectiveness;

(5) definition and evaluation of new and emerging roles and duties within the individualized framework, for teachers and other personnel (see Program C);

(6) continuous evaluation of program effectiveness; and

(7) provision for "exporting" the successful parts of the program, or its totality, to other Florida schools.

Procedure

Requests will be made to selected Florida schools and universities for proposals to undertake the development of a model elementary program. Respondents will need to be chosen with great care, and should be required to show evidence of cooperative compacts between schools and universities, or schools and other agencies, which will make possible school administration having the goals of the individualized program as a primary and overriding aim.

In this program, work could begin rapidly on the development of plans, procedures, and materials, so long as the previously mentioned conditions of school administration are met. Selection and development of curricular materials, learning guides, and design of instructional procedures will begin first with those appropriate for ages four through seven, and progress to later ages in subsequent years of the program. Beginning in the fall of 1970, there will be heavy involvement of teachers and administrators of the pilot school, and this will continue throughout the total period. Beginning with the second year, a second school system will become involved, to serve as a secondary try-out center for the materials and procedures developed, and to make preparations for the exporting of procedures to a broader sample of Florida schools.

Expected Outcomes of Program D

The development and evaluation of a model elementary school program of individualized instruction may be expected to bring about a significant forward step in educational improvement. Such a program should insure mastery of all basic intellectual skills in all pupils, and in such a manner establish a base of competence which will prevent future student alienation from continued and life-long learning. At the same time, it should bring about positive attitudes toward individual responsibility, self-reliance and realistic participation in social decision-making. New and clarified conceptions of teachers' roles in stimulating

and guiding student learning are likely to emerge. The major outcome, however, may be expected to be revealed in what pupils can really learn to do, once the restraints of "keeping in step" are removed.

Program E -- Student Participation in Instruction

School systems throughout the country have been seeking ways to make teachers more effective in meeting the varying needs of individual pupils. One of the basic factors contributing to the problem is the ever-growing variety and number of responsibilities and duties assigned to the teacher. Many observers have said--the teacher really has too much to do, and has too few resources to help him. The major job the teacher has to perform is, of course, the management of instruction: seeing to it that each student under his guidance is given the proper direction for future study, and that he has accomplished at least the minimal achievements which will enable him to progress in ways that will avoid blocks or other difficulties in his continued learning.

While the question of who manages instruction and attend to the needs of individual students is to be unequivocally answered by "the teacher," this does not turn out to be the entire answer. Who can help the teacher give the directions and verbal guidance that are often needed by the individual student as he progresses with his learning of particular tasks? A number of suggestions have been made, and some have been tried with some success. For example, mothers have taken over the functions of "teacher aides" in some schools. Specially selected neighborhood volunteers have in some instances taken over the responsibility of correcting English compositions and holding regular conferences with students about them, thus providing a kind of tutorial service. Other resources of the community have also been called upon to engage in instruction, including specialists in various commercial, industrial, and scientific enterprises, and these have generally been found to contribute a good deal to instruction in particular subjects. Even students have been used in various school settings to give direct "tutorial" instruction--sixth-graders have helped fifth-graders, seventh-graders have tutored sixth-graders, and so on. There is some support for the belief that the individual responsible for the teaching act has a tendency to learn more than the student receiving the information. If that be the case, then the cross-aging of students in the teaching-learning process can result in improved learning for both participants. To see instances of such student instruction is to be convinced that it can be very effective.

Although various kinds of "extra" resources have been called upon to assist the teaching operation, there have not been thorough and systematic attempts to try out a system of student participation in instruction. One of the major reasons appears to be that the proper materials to put such an enterprise into effect are not available. Textbooks and teacher handbooks are, after all, written for the use of teachers, not students. The typical textbook does not contain the kinds of verbal directions which enable an unsophisticated person (like a fellow student) to pick it up and give instruction from it. A second lack is the existence of simple measures of achievement (process and learning outcome) which can be used to assess the learner's progress, such as those described in Program A. Instituting and trying out a system of student participation in instruction will require, therefore, a program of development for student-oriented materials and procedures.

The participation in instruction by students would mean that the teacher is enabled to give individual attention to students at crucial decision-making points in their progress. The providing of specific verbal directions and guidance, which is a time-consuming process when conducted on an individual basis, could be carried out by fellow students who already have some acquaintance with the subject under

study, and who have been specially trained to use the instructional materials and process measures that have been developed.

Student participation has an integral relation with individualized instruction, as described in Program D. It needs to be evaluated as one alternative pattern of staffing relevant to defining teacher roles, as comtemplated by Program C. In consequence, it is related to the use of cost measures developed in Program B in cost-effectiveness determinations.

Procedure

Following the description of specifications, requests will be made to Florida schools for proposals to develop and evaluate a system of student participation in instruction, including development of the necessary materials. Proposals will need to include definite compacts between school districts and universities or departments of industrial organizations, the latter exhibiting the capability of developing: (1) learning outcome and process measures sharing the characteristics of those described in Program A; (2) sets of student-oriented directions for conducting individual tutoring of fellow-students, specifically related to curriculum materials used in the schools; (3) procedures for individualizing instruction employing student participation in the teaching function; and (4) methods for evaluation of the system.

It is expected that actual development work on this program can get underway beginning January, 1971, with involvement of teachers and other school personnel extending through the remainder of the school year and into the summer.

Tryout of the system in selected subject areas will then begin in the fall term of 1971. Additional classes and subject areas will be added in subsequent years, and evaluation of the system will continue on a yearly basis. During the third tryout year, attention will be primarily devoted to codifying and describing means for dissemination to other Florida schools.

Two projects appear to be desirable under this program:

Project E-1: Student participation in science and mathematics instruction.

Project E-2: Student participation in social studies and English communication.

Expected Outcomes of Program E

A program of student participation in instruction may be expected to have two primary effects. First, it will provide the teacher with instructional resources needed to put individualized instruction into effect in a thoroughgoing manner. Second, it will increase students' interest in school, in the process of instruction, and in their own intellectual development. Secondary effects may be even more noticeable, although harder to predict. Motivation of students may undergo a significant increase, as the feeling of "becoming involved" in the educational

enterprise is made apparent. Improvement of achievement of students is also an expected result, both because of increased interest, and because of the incidental effect that the activity of tutoring has upon learning. An important new pattern of instruction is likely to emerge, emphasizing the teacher's role as a manager, and as a counselor of human development for the individual student.

Program F -- Relating School and Community Resources

The relationship between the school and the community has suffered various kinds of deterioration over many years. Although the idea of "local school control" is a tradition and a source of pride to most Americans, it is perhaps not surprising that the increased complexities of a modern technological society have led to increasing specialization of functions among its institutions. In considering the problem of how to organize and conduct education, it is useful to remind ourselves that education is fundamentally a community responsibility. By the same token, schools are designed to serve the needs of the community. At this crucial time in history, heightened social concern is evolving an enlarged concept of community and it becomes important to, again, emphasize cooperation between community and school in the business of education.

The area of "community-school relationships" holds special promise for drawing on education-community resources to work for orderly and desirable social change. The increasing interdependence of citizens on one another, paced by rapid technological developments in communication and transportation, poses a challenge calling for new educational response in developing cooperative social relations. The vital interdependence of the human community and nature, threatened by disregard for maintaining ecological balances, poses a challenge calling for new educational response in appreciating man's place in the physical environment.

To foster the desired cooperative effort, a two-fold relationship between schools and community needs to be established:

(1) As the primary dispenser of education, the school ought to be intimately and responsibly involved in those community affairs which it affects.

(2) The school should actively seek ways of making use of community resources as a part of the school curriculum.

The school requires the involvement of the community for its support, both financial and intellectual, and the community requires the support of the school for the perpetuation of its culture, both intellectual and financial. The school cannot operate in a vacuum; it requires community support for educational innovations and change. Therefore, it must reach out to the community through involvement in its management structure, through increased interaction with parents and students, through new and creative uses of school facilities, through continuing education and job training opportunities.

A program of developing new modes and procedures for community-school relations includes the following components:

(1) development and demonstration of new techniques for obtaining community support of educational innovations and practices through the involvement of students, parents, community groups, and other organizations;

(2) survey and classification of the educational influences and instructional resources of the community, existing outside the school, and estimation of their potential or actual contribution to the educative process;

(3) prediction of costs and advantages related to the use of community

resources of specified types to perform education functions;

(4) development and demonstration of new and alternative uses of school facilities, for such services as health and welfare, and continuing education and job training programs, and vocational education;

(5) development and demonstration of a model for secondary school participation in an entire spectrum of community affairs--raising the quality of urban living conditions, upgrading efforts in environmental improvement, and others; and

(6) development and demonstration of an organizational form to provide for close cooperation between educational planning and urban planning, including planning for educational facilities with regard to utilization and accessibility by neighborhood populations.

This program relates most closely to Programs B and C. Considerations of the costs of education (Program B) need at some point to be placed in a larger framework of community functioning, to include the questions of what the community can provide to education, and what other services can be provided to the community by the schools. In an indirect sense, these questions highlight the problem approached by Program C, which deals with patterns of school staffing.

Procedure

Specifications will be drawn up, and requests for proposals made to appropriate Florida school districts for the study, development, and demonstration of alternative patterns of school-community relations. Proposals will need to provide evidence of compacts between school systems and university departments, or industrial organizations, or independent research and development agencies. The latter will provide essential services in (1) development of techniques for obtaining community support and involvement; (2) surveying and categorizing community resources in education; (3) forecasting costs and benefits resulting from alternative modes of community and school relations in the provision of needed services; and (4) evaluating the effectiveness of the newly instituted programs.

It is expected that development work can begin on this program by the first months of 1971. Teachers and other educational personnel will need to be involved in productive dialogue with urban planners and local government officials to an increasing degree during the early months, and continuing into the summer period. Initially developed techniques of improving community-school relations can be tried out beginning in the fall of 1971, and continue during that year. At the same time, work can begin on the study and classification of community resources for education. During the second full year of operation, alternative uses of school facilities will be demonstrated and evaluated. In a final year, a description of a comprehensive model of school and community involvement in community affairs will be undertaken, based upon evaluations of the model and its components. Procedures for dissemination to other communities will also be specified.

Expected Outcomes of Program F

The study, development, and demonstration of new modes of community-school

relations may be expected to yield a number of important benefits. It can produce evaluated techniques of improving the "image" of the school in the community. New ways to economy can be revealed by the categorization of community resources for education, as well as by alternative uses of school facilities for various functions of the community, including continuing education, occupational education, and welfare services. Perhaps the most promising outcome of all would be the breaking down of fences between school and community, and the direct involvement of schools in such forward-looking community enterprises as environmental improvement, raising urban living standards, and the provision of quality community services to all citizens.

Program G -- Developing Technology for State-wide Planning

Throughout the development of the Florida Educational Research and Development Program, educational research and development has been viewed as a tool for education decision-makers. The types of educational decisions which must be made and those for which research and development can contribute have been discussed. It has been suggested that, once value decisions regarding goals have been made, research and development can identify techniques through which those goals can be attained. Such techniques comprise the technology of education. It is in the refinement of educational technology that research and development makes its significant contributions.

However, once the technology is refined--once educational decision-makers know what is required to accomplish their goals--there are problems of management which yet remain. For example, if it is found that radically different organizational patterns will make it possible to teach reading much more effectively and efficiently, decision-makers must know what actions are required in order to implement those techniques. They must know the extent to which present resources can be deployed and the extent to which new resources must be developed or allocated. To obtain this information as it relates to various alternative approaches, it is necessary to employ technology. Such technology will facilitate the state-wide implementation of techniques for enhancing learning which are produced by the Research and Development Program.

It is proposed that a computer-based system for simulating the total Florida educational program be developed. This system would be the heart of a technological support system for state-wide educational planning. This system would be designed to yield data on current educational programs as well as on proposed programs. On current programs, it could provide answers to questions such as the following:

1. How effectively is classroom space being used?
2. What is the cost per pupil in various facets of the educational program throughout the state?
3. How much support under the Minimum Foundation Program is each school district entitled?
4. How do the characteristics of personnel (e.g., training and experience) vary from area to area within the state?

For future programs, this system might provide data related to the following questions:

1. What additional space will be required for future enrollments? What would the requirements be if various plans for lengthening the school year or the school day were employed?
2. What effects would variations in school staffing arrangements have upon the per pupil cost of instruction in specific areas?
3. What would be the cost of implementing alternate plans for providing state

financial support to public education?

4. How much retraining of present staff and how much additional staff would be required to implement specified changes in curriculum or school organization?

Possible Design and Timetable

The following statements regarding design are offered as illustrative of the concept, rather than as specifications for the system. It will be necessary to explore several alternative approaches before conclusions can be reached as to system design.

The data comprising the simulation system might be organized into three files--facilities, media, and personnel. The facilities file would contain school by school information on space which is available for use in educational programs. The information would include data on size, special equipment, and built-in constraints relative to the utilization of that space. The media file would contain information on equipment and materials available for use in each school district which are not assigned to specific classrooms. The personnel file would include information on instructional personnel, non-instructional personnel, and pupils. The pupil information would include only the numbers of persons in each school district by grade and by special classifications for which distinctive educational treatments are provided (e.g., migrant). Information on instructional and non-instructional personnel will include training, experience, assignment, certification, and other personal data.

The data for each file will be collected in the process of administering the programs for which the Department of Education is responsible--teacher certification, school accreditation, school facilities, school finance, and others. The system will be designed so that it can be used to produce reports required in the administration of those programs. Therefore, computer processing conducted with the new system will replace operations now being conducted with certain other computer programs. The development of the simulation system will build upon studies such as that conducted by the Aries Corporation to improve the efficiency and effectiveness of information processing in the Department of Education.

The basic method for using the system for a simulation problem will be to merge the three files applying such constraints to space utilization, personnel utilization and media utilization as are relevant to the problem. These constraints might relate to time, costs, class size, curriculum, or other aspects of the school program. The output would provide information in detail and/or summary form on resources used, resources not used, and resources needed but not available. Costs could be dealt with by applying detailed formulas to data from each of the files. These formulas could vary from school district to school district.

During the summer of 1970, various approaches to designing the simulation be explored and general agreement be reached as to the approach which will be followed. The detailed design of the system should be completed by the summer of 1971. This would include the plans for collecting data required for other programs and producing the reports required by those programs. The programming and testing of this system would be completed by the summer of 1972, and the system would become fully operational at that time.

Program H -- Developing New Techniques and Materials for Teacher Training

The changes that are now taking place in educational programs as a result of individualized instruction, differentiated staffing, use of community resources as part of the curriculum, and the inclusion of students in the instructional program have amplified the call for a different breed of educator. Thus, new models for the initial and continuing preparation of teachers and educational administrators must be devised to accompany changes made in the teaching-learning act. New models for teacher education and administrator training would be developed with the basic concept that their initial preparation and continuing education is a joint responsibility of the university, the state, the profession, schools and the community. This would necessitate a new arrangement for the professional sequence for teachers and administrators, both inservice and preservice.

A program which undertakes the training and retraining of professional educators in order to meet the needs of education in a highly complex and rapidly changing society must include at least the following components:

1. Early "on line" training for teacher candidates.

2. Continued professional training and retraining of in-the-field educators.

3. Involvement of university, state, and community agencies; professional organizations, and the schools.

Florida's Commissioner of Education has declared that the improvement of teacher training is a top priority for the Department of Education. This adds validity to the concept that improved teacher training is a critical link in the improvement of education.

During the past year, techniques have been developed in Florida for designing individualized teacher training modules. Each of these modules contains the following elements:

1. A set of objectives which describes fully what the trainee will be able to do after successfully completing the module.

2. Appropriate procedures and materials for accomplishing each of the objectives.

3. Evaluation exercises or activities which can be used to determine when the module user has accomplished the objectives.

In short, a module is a carefully designed and tested set of procedures and materials for accomplishing a teacher training objective. Such modules make it possible to individualize teacher education in the same manner that Program D proposes to individualize education for elementary pupils.

Presently, there are 53 individualized teacher training modules being revised and tested for general use in teacher training programs in Florida. These were developed through federally supported programs. Most of these modules deal with general presentation skills for use by elementary teachers. There is a great need

for modules dealing with planning skills, administrative techniques, inter-personal skills, and skills specific to subject areas.

Procedures

The immediate plans for this program will be to complete, empirically try out, revise and make operationally available the teacher training modules now underway. This program will also provide for the production of the additional modules felt necessary to operate a functional library of individualized teacher-administrator training materials. In order to accomplish this, task forces will be formed to focus on specified subject areas or skills, educational administration tasks and various teaching specialties. These task forces will be composed of practitioners, professors from higher institutions, representatives from agencies outside the profession when they can be of service and Department of Education specialists.

This program will be inextricably interwoven with the research and development programs described earlier. Each time special techniques or materials are developed, appropriate teacher training or administrator training procedures and materials will be developed to facilitate the utilization of the research and development products. Materials and procedures will be developed to teach teachers and administrators how to use the new measurement devices designed under Program A, to teach the appropriate personnel how to use the accounting procedures designed in Program B, to teach personnel to function in the new roles identified in Program C, and similarly for Programs D, E, and F.

In addition to the first priority of making operational the individualized training modules, this program will provide encouragement in the development of a model for the training of educators consistent with the premise that any new model must involve the community, the schools, the university, and the State and that much of the professional training must take place in the real laboratory.

Program I -- Patterns, Mixes and Mechanisms in Developmental Capital for Education

A most important inhibiting factor to school reform and renewal is the line item budget, commonly the sole budget form for the school enterprise. Recent experience at federal, state and local levels in the expenditure of many billions of dollars to secure better and more responsive practice in the public schools suggests that the pattern of funding, the mix of funds and the mechanisms for allocating dollars, may be as important for the success of a given program as the actual amounts allocated. This highlights the value of a special program to try out differential patterns, mixes, and mechanisms in the flow of discretionary accounts to isolate alternative and "best" practices.

Patterns of Funding

Study should be made of basic support capital, development capital, and incentive capital in such roles as technical assistance, adoption of good practice, adoption and installation, training, involvement, motivation, and toward other desired ends.

Mixes of Funds

Program design should include descriptions of and different patterns of use of funds in securing desired results. What are the optimal ratios of planning funds, assistance funds, evaluation funds to operational funds for example?

Mechanisms of Funding

Programs should include provision for studying mechanisms for the allocation of funds such as:

(A) bidding
(B) performance contracts
(C) vouchers
(D) bonuses and incentives
(E) contracts with payment on the basis of successful performance
(F) installation and "turnkey" contracts
(G) performance bonding

Procedure

Careful attention to pattern, mix and mechanism will be applied to the requests for proposals in Programs A through H. During the first year, Programs A through H, employing each or any of the above patterns, mixes or mechanisms will be reviewed. On the basis of this review, tentative statements of principles regarding the flow of funds will be articulated. During the next year, these principles will be used in funding activities supported under the Florida Educational Research and Development Program. Data will be collected to test the validity and replicability of

those principles. In addition, data will be gathered from other programs both within and outside the state.

Expected Outcomes of Program I

Program I will provide decision-makers such as the state educational leaders and legislators with sound principles for use in the support of research and development programs as well as for improving the basic, on-going program of educational finance.

IV. SUMMARY AND RECOMMENDATIONS

The Florida Educational Research and Development Act was enacted by the Florida Legislature to improve education and to provide instruments for making significant educational decisions related to efficiency and effectiveness of the programs. It was not intended that the immediate problems of various school systems be handled under the provisions of this act but that support should be directed at long-range, applied research and development. Any project conducted under this act must contain the following elements:

1. It must yield a product which is relevant to the educational goals of the State of Florida.

2. It must provide an accurate statement of developmental and operational costs.

3. The resulting product will consist of procedures, materials, or techniques for use in carrying out the administrative or instructional aspects of Florida education.

The first year of operation under the Research and Development Act was used in planning and identifying the tasks and goals of the Research and Development Program. The Board of Governors and the Advisory Council were cognizant of the nation-wide demand that each child be proficient in the skills of communication (reading, writing, and speaking), arithmetic, science and social studies, but they also took into consideration the ever increasing need for developing a balanced individual; one able to operate effectively in a rapidly changing society faced with decisions related to occupational demands, drug abuse, student unrest, racial discontent or the more encompassing problems of pollution and overpopulation.

In defining the goals of the program, it was determined that individualized instruction must be considered as a vital component of the program if a favorable impact is to result; that an instrument for assigning quality assessments to educational tasks had to be constructed; that a system of cost analysis must be devised and activities related to the teaching-learning act had to be examined and evaluated against specific objectives. The descriptions of these concepts became Programs A through I and now compose the elements of the recommended Program of Research and Development.

(A) Development and evaluation of a system for assessing the quality of educational outcomes in Florida schools, in terms of the performances of students in activities of value to them in a modern society.

(B) Development of a cost-determination system which will make possible the forecasting of costs of various plans for education involving changes in the use of personnel, facilities, duration of efforts, and involvement of community resources.

(C) Determination of the validity and effectiveness of school staffing patterns for efficient utilization of public school personnel, and development of a model for systems analyses of future staffing problems in cost effectiveness terms.

(D) An integrated developmental effort to establish an individualized model for elementary schools, involving the individualization of instruction, with emphasis on basic skills, learning strategies, and positive attitudes toward continued learning.

(E) Development and evaluation of a system for student participation in instruction which provides additional new resources for the teacher as a manager of the instructional process and a counselor of individual student development.

(F) Study, development, and demonstration of new modes of community-school relations, providing for increased involvement of students, parents, and community leaders in community programs, and increased use of school facilities to serve larger community needs.

(G) Increasing capabilities of the Department of Education for planning and evaluating educational programs, by development of a system to provide techniques and tools for use in the Department of Education in support of its decision-making functions.

(H) Developing new techniques and materials for training professional educators aimed at specific teacher-administrator training objectives and with built-in evaluation techniques to determine the extent to which objectives are accomplished. Such materials should make possible a new approach to certification which would be based upon performance criteria.

(I) Careful review of patterns, mixes and mechanisms in developmental capital applied to Programs A through H will result in statements of principles regarding the flow of funds.

Recognizing the fact that certain parts of the Program (A, C, D, E and possibly F) have a more direct bearing on the learning processes and in that way will have a more immediate impact on education; and realizing that certain critical areas within the program had to be available before proceeding with the development of others, the Board of Governors recommends the following developmental timetable and has assigned a cost to the various stages of development:

1st Year: (Now being completed) Planning and identifying tasks and goals.

2nd Year: Place emphasis on the elements within the program which will strengthen the position of the Department of Education and provide the information necessary for making significant educational decisions related to other areas of concentration. It is recommended that Programs A, B and G be funded to the extent required to proceed with construction of models for examination. The other programs should be supported to the level required to prepare them for concentrated development in the third and fourth years.

Amount - $1,877,000

3rd Year: Continue development of the total program. Support the empirical trials and revisions of the various programs as they reach the requisite level of maturity. Activate the research necessary to complete a priority

list of areas of development in Program A.

Amount - $4,000,000

4th Year: All programs brought to the level of developmental investment with new areas of concentration added to Program A and the principles regarding the flow of funds (Program I) being applied to the disposition of additional capital.

Amount - $5,000,000

5th Year: Program A continues to add areas of development in order to move toward a total curriculum. All programs will be continually monitored, assessed and modified in order to ensure quality and focus in meeting the state's needs.

During the fifth year, it is expected that many of the programs will have reached the stage of development which requires that installation, replication and operational costs become a vital part in bringing the elements of the total program to fruition.

Amount - $6,000,000

In summary, each component of the program is relevant to all other components and vital to the development of a quality educational program and to the construction of a system for making significant educational decisions. The proposed Educational Research and Development Program provides a way to define educational goals, discover what "works" in reaching those goals and allows for a cost analysis of the various components of the system.

229.561 **Educational research and development.**—There is hereby created an educational research and development program which shall be administered by the commissioner of education. It is the intent of the legislature that a specific sum of funds shall be allocated each year for the sole purpose of sponsoring the designing, development, testing, and evaluation, on a pilot project basis, of applied or action research studies or projects which seek information on questions of critical concern to present and future educational needs of this state. The commissioner of education shall develop and implement an educational research and development program as hereinafter provided. The commissioner of education shall develop and transmit, at least thirty days prior to the 1970 regular session of the legislature, to members of the state board of education, the president of the senate, the speaker of the house of representatives, and members of the senate and house committees on education a detailed plan for implementing a program of applied educational research and development. The plan shall be for four years of operation beginning July 1, 1970. The plan shall be in detail for the 1970-1971 fiscal year and the funds to support projects for

1970-1971 shall be included in the legislative budget of the state board submitted to the governor as chief budget officer of the state for the 1970-1971 fiscal year. The plans submitted in 1970-1971 for the second through the fourth year may be stated as a general long-term plan and will not require detailed cost estimates.

*(1) ADVISORY COUNCIL.—The board of education shall, within thirty days following the effective date of this act, appoint an educational research and development advisory council from a list of two or more names nominated for each position by the commissioner of education.

(a) *Membership.*—The number of individuals appointed to membership on the advisory council shall be determined by the state board of education; provided, however, that at no time shall the total membership of the advisory council consist of less than twelve persons. Each member shall be appointed for a period of one year. Members shall be eligible for reappointment. The membership and the total number of members may change from time to time as deemed appropriate by the board of education. In making appointments, the state board and commissioner shall insure that the membership shall include representation from various segments of education and shall include lay citizens and students.

(b) *Duties and responsibilities.*—As soon as practicable, following appointment of the initial members of the advisory council, the commissioner of education shall call an organizational meeting of the council. From among its members, the council shall elect a chairman, who shall preside over meetings of the council and perform any other duties directed by the council or required by its duly adopted policies or operating procedures. The council shall also perform the following duties and responsibilities:

1. Within ninety days following the effective date of this act or on September 30, 1969, whichever is the earlier date, the advisory council shall recommend individuals for nomination to membership on a board of governors for educational research and development. The advisory council shall recommend to the commissioner of education the names of at least fifteen individuals who shall include both lay citizens and professional educators of national prominence in education. The commissioner shall nominate two or more individuals for each position on a board of governors for educational research and development.

2. Make recommendations, as it deems appropriate, to the board of governors concerning the establishment and operation of a program of sponsored educational research and development as provided by this act.

3. Be knowledgeable about all projects sponsored under the provisions of this act and make such recommendations to the board of governors as in the opinion of the members of the advisory council will be of assistance in improving the program.

4. Review the evaluative data on each project sponsored under the provisions of this act and make recommendations to the board of governors about the potential benefits the project information has for education in Florida and strategies for implementing it, including, where appropriate, priorities, target areas, phasing, or sequence.

(c) *Payment of expenses.*—Members of the advisory council shall be entitled to receive per diem and expenses for travel while carrying out official business of the council. Such expenses shall be paid in accordance with state law relating to official state travel. The department of education shall approve payment of such expenses in accordance with established rules and regulations.

(2) BOARD OF GOVERNORS FOR EDUCATIONAL RESEARCH AND DEVELOPMENT.—The state board of education shall, from the individuals nominated by the commissioner, appoint a board of governors for educational research and development.

(a) *Membership.*—The board of governors shall not exceed nine members and shall include citizens and professional representatives from several different levels of education and, to the extent possible, shall include individuals of national prominence in education from both within and without the state. The terms of appointment for each member shall be three years and until a successor is appointed, except in case of an appointment to fill a vacancy, in which case the appointment shall be for the unexpired term; provided, however, the terms of the initial members shall expire as follows: Three on July 1, 1970, three on July 1, 1971, and three on July 1, 1972.

(b) *Duties and responsibilities.*—As soon as practicable following appointment of the board of governors, the commissioner of education shall call an organizational meeting of the board. From among its members, the board shall elect a chairman, who shall preside over meetings of the board and perform any other

duties directed by the board or required by its duly adopted policies or operating procedures. The board shall also perform the following duties and responsibilities:

1. Make recommendations to the commissioner for establishing a program for educational research and development as provided by this act.

2. Submit to the commissioner of education, in priority groupings, specific educational and education-related questions which, in the opinion of the board of governors, are most critical to improving the effectiveness of public education in Florida.

3. Establish criteria to be used in selecting a network of schools throughout the state to participate in conducting projects sponsored under the provisions of this act.

4. Assist with defining specifications for projects to be sponsored by the educational research and development program. All projects sponsored under the provisions of this act shall be designed to state clearly the specific objectives of the project, appropriate controls to insure reliability of data obtained from the project, appropriate evaluation of the project, especially as to the attainment of stated objectives, and adequate dissemination of the results of projects.

5. Recommend to the commissioner of education projects which, in the opinion of the board, should be approved for sponsorship by the educational research and development program.

6. On the basis of the priority of projects to be undertaken and the criteria for selecting participating schools or centers, solicit, on a statewide basis, application from local schools and centers to be designated as a participating school or center.

7. Review applications from local schools or centers and recommend to the commissioner of education the schools or centers deemed to be, in the opinion of the board, those which best support and serve the purposes of the educational research and development program.

8. Review project specifications prior to approval for funding.

9. Recommend to the commissioner of education a highly qualified person to be appointed to administer and direct the program of educational research and development as provided by this act.

10. Review, periodically, the activities of each sponsored project and make to the commissioner of education any recommendations deemed by the members of the board to be appropriate.

11. Recommend to the commissioner of education strategies for implementing on a broader scale findings which have immediate relevance for improving the effectiveness of education in Florida.

12. Review the evaluative data from each sponsored project and at least thirty days prior to the convening of each session of the legislature, file with the commissioner of education for transmittal to members of the state board of education, the president of the senate, the speaker of the house of representatives, the chairmen of the senate and house committees on public school education, a report listing all projects sponsored under the educational research and development program up to that date and pointing out significant and new information, practices, or other benefits which have been accomplished through the program.

(c) *Payment of expenses.*—Members of the board of governors for educational research and development shall not receive a salary but shall be entitled to receive per diem, expenses for travel and honoraria while carrying out official business of the board in accordance with state law relating to official state travel. The department of education shall approve payment of such expenses and honoraria in accordance with established rules and regulations.

(3) NETWORK OF PARTICIPATING SCHOOLS OF EDUCATIONAL CENTERS.—There shall be established a network of participating schools or educational centers which shall be representative of all levels of public school education, kindergarten through post high school vocational education and which also shall be representative of the various types of student bodies, organizational patterns, staffing patterns, financial support, and types of curricula generally prevalent in Florida.

(a) *Selection of participating schools or centers.*—Based on the priority of projects to be undertaken and the criteria established by the board of governors for educational research and development, the principals and faculties of the schools of the state shall be given an opportunity to file, through the superintendent of schools and district school board, an application seeking to be selected and designated as a participating school or educational center of the state educational research and development program. The advisory council and board of governors shall review the applications, and the board of governors shall recommend to the commissioner of education the schools or centers which in the opinion of the board will best support and serve the purposes of the educational research and development program. From the schools and centers recommended by the board of governors, the commissioner shall designate the schools or centers which shall be eligible to participate in projects sponsored by the educational research and development program provided by this act.

(b) *Number of participating schools or centers.*—The number of participating schools or centers designated by the commissioner of education shall be limited to only those centers actually required to satisfactorily carry out the projects sponsored by this program.

(c) *Waiver of laws or regulations.*—In the event the commissioner of education is provided evidence satisfactory to him that a state board of education regulation will prohibit the success of a project considered to be highly significant to education, the state board of education, upon hearing the evidence and justification presented by the commissioner of education, shall have authority to waive the regulation to the extent necessary for achieving the purposes of the particular project. Any waiver of a regulation authorized by the state board of education shall not be greater than that necessary to insure the success of the project, and such waiver shall not continue beyond the actual period required by the project. Each application filed by a school or center seeking to be designated as a participating school or center shall include an official resolution by the district school board that when projects sponsored in schools or centers operated by that board require waiver of policies or regulations of the district school board, such policies or regulations will be waived in the same manner as prescribed to be followed by the state board of education in waiving regulations. In the event a proposed project will require the waiver of state board of education or district school board regulations, the commissioner of education shall not approve such project prior to receiving evidence of the official action by the state board of education or the district school board that the *impeding regulations have been waived for the purposes of the project.

(d) *Cooperative support of projects.*—Each application for designation as a participating school or center shall include a resolution by the district school board that at least the level of financial support, staff, and other resources as provided for other programs within the district shall be continued for the school or center if it is designated as a participating school or center for the state educational research and development program. Funds available through the educational research and development program authorized by this act shall be used to pay only that cost which is incurred at a participating center which is in addition to the normal cost of operating the program in that district and which costs are a direct result of the state educational research and development project being sponsored in that school or center. Every effort shall be made by the board of governors, the commissioner of education and the district school boards to combine funds available through the educational research and development program with funds from other sources, including both the public and nonpublic sectors, in order to achieve greater cooperation efficiency in the improvement of education.

(4) ORGANIZATIONAL PROGRAM, 1969-1970 FISCAL YEAR.—The program shall become operational at the beginning of the fiscal year following its creation and authorization by the legislature. The 1969-1970 fiscal year shall be used for appointing and organizing the advisory council and the board of governors, employing staff, developing the master plan for the program, and designating participating schools or centers.

History.—§§1, 2, ch. 69-401; §§31, 35, ch. 69-106.
*Note.—"Impending" changed to "impeding" by the editors.

SPECIFICATIONS:

FIRST-YEAR READING

A. Learning Outcome Measures

Tasks to measure outcomes of learning at the "first-year" level will partake of the following characteristics:

(1) derived from descriptions of pupil performance in reading;

(2) representative of experienced teacher's judgments of performance possible to "average" pupils who are not unsuccessful readers;

(3) representative of the class of performance described;

(4) described in a manner which is comprehensible by pupils as a task to be accomplished;

(5) administrable in a manner which insures that the measure obtained is independent of the scope of the pupils' vocabulary;

(6) readily scorable on a "yes" or "no" basis;

(7) possessing reliability indicated by at least 75% correspondence between any two items applicable to a single performance.

1. Description in Terms of Pupil Performance

Items designed to measure reading will be derived from descriptions of expected pupil performances (sometimes called behavioral objectives). Such descriptions take the form of statements such as the following: "Given a printed passage of sentences containing a preponderance of words formed by regular spelling rules, reads the sentences aloud in sequence, without committing errors in these regular words." In contrast, statements such as the following do not constitute adequate descriptions: "Reads aloud from standard primary reader"; or "Demonstrates effort and attention to word-attack skills". Statements describing reading items will be designed to possess denotative meanings which are reliable; that is, the items they describe will be replicable by two or more independent judges.

2. Level of Item

As derived from performance statements, items will be representative of an estimated level of performance applicable to terminal first-grade pupils, as judged by two or more experienced teachers. Such judgments will be based upon the performance of average first-grade readers, exclusive of those who are unsuccessful readers. The purpose of such judgments is to obtain approximations to "reasonable" performance, rather than to fix an exact level.

3. Representativeness

Items derived from performance descriptions will be designed to be representative of the entire class of performance so described. Considerations of "item difficulty" will be scrupulously avoided, in achieving the aim of representativeness. This means the exclusion of such unrepresentative items as (1) those which might be recalled as a result of memorization; (2) those which contain ambiguities; and (3) those which contain complexities arising from outside the domain of the performance to be measured.

4. Comprehensibility

Items employed for measurement will be administrable by means of verbal directions which are fully comprehensible to the child whose performance is being measured. Verbal directions will be designed to make clear to the child the nature of the performance he is expected to display in response to the item. Demonstrations by illustration provided by the item-administrator may be used whenever necessary to achieve this aim.

5. Independence of Vocabulary

Reading items will be designed to measure designated reading competence in a manner which is independent of the scope of the child's vocabulary. In many instances, this characteristic may be achieved by the use of words in reading passages which are known to be familiar to children in oral speech. In other instances, where unfamiliar words must be used, their meaning may be communicated to the child by means of verbal

directions before the item is administered. Note, however, that this provision should not be taken to indicate a prohibition of certain items specifically designed to measure knowledge of word meanings; when such are required, the measurement may be undertaken directly, and independently of other reading skills.

6. Binary Scoring

Items will be designed to be scorable as indicating that the particular performance either can or cannot be done by the pupil, in a "yes" or "no" fashion. Where number of elements contained in the performance (such as number of errors of pronunciation) is to be observed or recorded, the scoring of the item will be expressed so that a simple translation to "yes" or "no" is possible (for example, "yes" if no more than 2 out of a possible 10 errors).

7. Reliability

Reliability of items will be assessed as per cent correspondence between any two items designed to measure the same performance class, when administered to at least ten (10) first-grade children. Minimal acceptable correspondence for any item is 75%.

8. Number of Items

For any given performance class, three (3) items of demonstrated reliability will be considered to constitute the standard number to constitute adequate measurement for use in the school. Additional numbers of items representing each performance will, however, be required to meet particular experimental and program-evaluation needs. These additional items will be specified elsewhere in sections devoted to these activities.

B. Learning Process Measures

Tasks to measure learning process leading to specified objectives will have the following characteristics:

(1) derived as necessary or highly facilitatory subordinate capabilities, expressed as pupil performances, contributing to the learning of other capabilities which build in a cumulative manner to particular learning outcomes (derived as in A);

(2) administrable as separate and independent tasks, comprehensible to pupils as tasks to be accomplished;

(3) in other respects designed in accordance with the following specifications for learning outcome measures: A3, A5, A6, A7, A8.

1. Subordinate Capabilities (Performances)

Items designed to measure learning process will be derived from each particular learning outcome measure in the following manner. Beginning with the description of performance outcome (A1), describe those subordinate performances which are necessary or facilitatory of the learning of the designated performance.

Example: Learning Outcome: pronouncing printed three-letter words of the CVC pattern.

Subordinate Capabilities: (1) pronouncing the vowels when printed in isolation; (2) pronouncing printed consonants in isolation; (3) editing trial pronunciations of 3-letter sequences to match words familiar in oral vocabulary ("blending").

The procedure continues as follows. Each subordinate capability is now treated in the same manner, so that still another set of subordinate performances is derived from it.

Example: Pronouncing vowels when printed in isolation.

Subordinate Capabilities: (1) recalling sounds of vowels (short) as labels; (2) discriminating printed letters.

When completed, the process results in a "hierarchy" of subordinate capabilities, each expressed as a pupil performance, and each capable of being independently measured. Such

measures are intended as indicators of pupil progress, to be administered as promptly as required by pupil learning, and exhibiting his advancing competence with reference to the achievement of learning outcomes.

2. Administrability as Separate Tasks

Items designed to represent subordinate performances will be accompanied by verbal directions, illustrations, or demonstrations which make possible their comprehensibility to pupils, and their administrability as separate and distinct tasks.

3. Other Characteristics

In other respects, process measures will be designed in accordance with specifications governing the development of learning outcome measures, as described in paragraphs A3, A5, A6, A7, and A8.

C. The Measurement Domain

The domain of measurement for first-year reading will be described in appropriate charts, each applicable to a segment of the total domain. At a minimum, each such chart will present one learning-outcome objective together with its subordinate performances, arranged in a sequential (or hierarchical) configuration. When convenient, two or more of these sequences may be combined in one chart. Each chart will indicate the relation of the sequence contained in it to other sequences at lower and higher "levels." Characteristics of charts of the measurement domain are to include the following:

(1) the domain illustrated will contain those minimal performances, outcome and subordinate, which describe an efficient learning route to the attainment of the objective described;

(2) readily comprehensible to teachers, in terms of communicable performance objectives of pupils;

(3) indicative of prior student learning ("where the student has been") and desirable next objectives to be achieved ("where the student needs to go");

(4) keyed to the identification of both process measures for subordinate capabilities, and outcome measures, available to the teacher;

(5) capable of illustrating the entire measurement domain of first-year reading.

1. Performance Illustration

Individual charts of the domain of measurement will be applicable to one or more learning outcome as defined in A1, and in addition will illustrate a sequence or hierarchy of subordinate performances as described in B1. The sequence thus illustrated will indicate an order of attainment of subordinate capabilities which will lead to efficient learning of the sequence and achievement of the learning outcome described. (The order described here is not intended to refer to a "sequence of instruction", and should not be confused with this term. The order of capability attainment to be illustrated may make possible several alternative sequences of instruction).

2. Communicability

Descriptions of learning outcomes and subordinate performances will either be the same as those described under Sections A and B, or will be abbreviated but exact representations of these performance descriptions. In any case, they will be designed to be immediately comprehensible to teachers.

3. Indication of Student Location

Each chart which represents a portion of the measurement domain will be designed to locate, by means of the measures described in Sections A and B, the position of the student with reference to those capabilities previously acquired and those yet to be learned. It is intended that a copy of each chart will be used by the teacher for the purpose of overviewing the location of the student following the application of each capability measurement.

4. Identification of Process and Outcome Measures

Each chart of the measurement domain will identify, by means of a simple key or code, the process or outcome measure corresponding to each performance description contained within it.